DOCUMENT RESUME

ED 328 141 HE 024 186

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TITLE The Collection, Analysis and Presentation of Enrollment and Service Area Data To Support the Strategic Planning Process at Phoenix College. Emergence of Higher Education in America.
PUB DATE Sep 90
NOTE 34p.; Ed.D. Practicum, Nova University.
PUB TYPE Dissertations/Theses - Practicum Papers (043)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS College Attendance; College Bound Students; College Planning; *Enrollment Trends; Higher Education; Institutional Research; Practicum Papers; Research Methodology; School Statistics
IDENTIFIERS *Phoenix College AZ; Strategic Planning; Zip Codes

ABSTRACT

The study described in this report was designed to determine student enrollment trends and the service area of Arizona's Phoenix College (PC). Headcount and full-time student equivalent (FTSE) data were collected for fall semesters from 1985 through 1989. The average yearly change in enrollments was calculated and presented in table and graph formats. To determine the PC service area, enrollment totals by zip code were collected for fall 1989 from which a map of the service area was drawn. It was revealed that PC day headcount increased an average of 4.04% per year, and day FTSE increased on the average of 1.92% per year. Evening headcount declined an average of 1.38% per year, and evening FTSE declined an average of 1.76% per year. Zip code analysis showed that approximately 70% of the students at PC lived within an area less than six miles in radius, and enrollment from zip codes that include major thoroughfares extended beyond the six-mile radius. It was concluded that the overall average enrollment trend over the past 4 years at PC has been stable; average growth was approximately 1% per year. Additional enrollment trend studies are recommended, including an examination of trends within demographic subdivisions such as age, gender, and ethnic identity. Contains 14 references. (GLR)

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THE COLLECTION, ANALYSIS AND PRESENTATION OF ENROLLMENT AND SERVICE AREA DATA TO SUPPORT THE STRATEGIC PLANNING PROCESS AT PHOENIX COLLEGE

Emergence of Higher Education in America

by

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A Practicum Report presented to Nova University in partial fulfillment of the requirements for the degree of Doctor of Education

Nova University

September, 1990

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Abstract of a Practicum Report Presented to Nova University in Partial Fulfillment for the Requirements for the Degree of Doctor of Education

THE COLLECTION, ANALYSIS AND PRESENTATION OF ENROLLMENT AND SERVICE AREA DATA TO SUPPORT THE STRATEGIC PLANNING PROCESS AT PHOENIX COLLEGE

by

Marian Gibney

September, 1990

The purpose of this study was to collect, analyze and present enrollment and service area data to support the strategic planning process at Phoenix College (PC). The problem was that PC did not have a plan in place to assess enrollment trends. The service area of the college was assumed to be a six-mile radius around the college, and the accuracy of this assumption had never been assessed.

Headcount and full-time student equivalent (FTSE) data were collected for fall semesters from 1985 through 1989. The average yearly change in enrollments was calculated and presented in table and graph formats. To determine the PC service area, enrollment totals by zip code were collected for fall 1989. Using these totals, a map of the service area was drawn.

For fall 1985 through fall 1989, it was found that the day headcount at PC increased an average of 4.04 percent per year, and the day FTSE increased on the average of 1.92 percent per year. Evening headcount declined an average of 1.38 percent per year, and evening FTSE declined an average

of 1.76 percent per year. The combined headcount increased 1.11 percent per year, and the FTSE increased an average of .50 percent per year.

After meetings with the college administrators, it was decided that the service area would be defined to include zip codes that provided 200 or more students per semester. For fall 1989, twenty-four zip codes provided 200 or more students, accounting for 69.6 percent of the total enrollment at PC for fall 1989. A map showing these zip codes and the number of students coming from each was drawn.

It was concluded that enrollment at PC has been stable for the past four years. The overall growth rate for the past four years averaged approximately 1 percent per year. The number of day students increased while the number of evening students decreased. Approximately 70 percent of the students at PC lived within an area less than six miles in radius, and enrollment from zip codes that include major thoroughfares extended beyond the six-mile radius.

A comprehensive study of enrollment trends at PC was recommended, including an examination of trends within demographic subdivisions such as age, gender and ethnic identity. It was also suggested that population and employment data for the service area be examined to help determine future directions for the college. Finally, it was recommended that information regarding the service area should be considered when planning marketing activities.

TABLE OF CONTENTS

	Page
LIST OF TABLES	v
LIST OF FIGURES	vi
Chapter	
1. INTRODUCTION	1
Background and Significance	1
Research Questions	4
2. REVIEW OF LITERATURE	5
3. METHODOLOGY AND PROCEDURES	9
Definition of Terms	10
Assumptions	11
Limitations	12
4. RESULTS	13
5. DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS	18
Discussion	18
Conclusions	20
Implications	21
Recommendations	22
REFERENCES	24
APPENDICES	
A. MAP OF PHOENIX COLLEGE SERVICE AREA	26

LIST OF TABLES

Table		Page
1.	45th Day Headcount and FTSE for the Day and Evening Programs at Phoenix College from Fall 1985 through Fall 1989	13
2.	Zip Codes That Provide 200 or More Students Per Semester to the Phoenix College Enrollment	16

LIST OF FIGURES

Figure		Page
1.	Day and Evening Headcounts at Phoenix College for Fall 1985 through Fall 1989	14
2.	Day and Evening FTSE at Phoenix College for Fall 1985 through Fall 1989	15

Chapter 1

INTRODUCTION

Background and Significance

Maricopa Community College District (MCCD) expects to serve a growing number of students through the next twenty years. These students will come from increasingly non-traditional sources such as corporate training programs and from the growing numbers of older adults as life-long learners. In order to accommodate these students, capital improvements must be made at all of the colleges within the district. In addition, technological advances will require the purchase of sophisticated and expensive equipment to meet the needs of both traditional and non-traditional students (de los Santos, 1990).

There are several methods of financing capital improvements. In 1989, MCCD received about 61 percent of its financing from local property taxes, 18 percent from state appropriations, and 14 percent from tuition and fees ("Here's Where the Money Comes From," 1989). For the large capital improvements planned by MCCD over the next twenty years, it was decided that a bond would be the most reasonable method of financing (de los Santos, 1990). In 1992, MCCD will ask the voters of Maricopa County to approve a $250 million capital bond.

In order to make decisions regarding capital resources needed to meet the educational needs of the students at MCCD, a comprehensive system of strategic planning has been instituted by the district. This will include facilities planning, planning for program development, and enrollment planning both at the district level and at the level of the individual colleges within the district. The preliminary phase, which has been called the Plan-to-Plan consists of an assessment of the existing system, in particular, enrollment trends and college service area (de los Santos, 1990). The data to be collected at this preliminary level was identified in the Plan-to-Plan document (de los Santos, 1990). Included in the Plan-to-Plan document was a directive that all colleges collect and report similar enrollment data for this phase. The data to be collected were identified as the certified enrollment on the 45th day of the fall semesters. This is the enrollment data that is reported to the state. MCCD receives funding for the number of full-time student equivalents (FTSE) enrolled on the 45th day of the semester. This information will then provide the basis for making predictions about the future direction of the individual colleges as well as the district.

The problem was that Phoenix College did not have a plan in place to assess enrollment trends for the entire college. The service area was assumed to be a six-mile

radius around the college and, the accuracy of this assumption had never been assessed.

The purpose of this project was to collect, analyze and present data regarding the current enrollment trends and the service area at Phoenix College. According to Wing (1980), in order to develop a usable projection model, factors such as enrollment trends and geographic origins of students must be included. The data generated from this study was used to answer the questions: "Where do most of the students who attend Phoenix College live?" and "What have been the basic enrollment trends at Phoenix College from fall 1985 to fall 1989?" The answers to these questions will provide the groundwork for models that will facilitate prediction of future enrollment, future program needs, and future facility needs.

One of the focuses of the Emergence of Higher Education in America seminar was the evolution and future direction of the community college system. The community or junior college, as conceived by William Rainey Harper, first began as an extension of high school and was promoted as a preparation of students for entrance into the university (Bryant, Kintzer, and Wattenbarger, 1990). Since that beginning in the early 1900s, the community college movement in the United States has expanded so that every state has at least one community college. With the expansion of the community college and the with increasing numbers of

students served by these institutions, comes the problem of definition of mission of the community college. Tillery and Deegan (1985:29) trace the evolution of the community college through four generations and discuss the challenges facing the community college in its fifth generation:

> Shaping the future community colleges will not be easy. No end is in sight for fiscal stringency in any domain of public affairs. Institutions, if they are to survive, will have to be highly productive and publicly accountable. The pace and scope of social and technological change is so rapid and profound that we do not yet know how, where, or what people ought to learn.

Planning for the future involves a knowledge of where the institution is in the present, where it has been heading and who are the clientele. This knowledge can be incorporated into models for predicting the most appropriate future direction for the institution. Through the strategic planning process, MCCD can begin to plan to effectively serve the members of the community that support it.

Research Questions

The purpose of this project was to collect, analyze and present information about the service area and current enrollment trends at Phoenix College. The descriptive research methodology of this study was designed to answer two research questions. These questions were: "What have been the basic enrollment trends at Phoenix College from fall 1985 through fall 1989?" and "Where do most of the students who attend Phoenix college live?"

Chapter 2

REVIEW OF LITERATURE

In order to describe current enrollment trends and to lay the foundation for a model for predicting future enrollments, it is necessary to review some of the techniques used for these purposes. The importance of knowledge of enrollment trends for strategic planning is discussed in addition to a review of the findings and procedures of four enrollment projection studies. Finally, the importance of integration of academic and physical planning for successful strategic planning efforts is discussed.

Wing (1980) describes the various techniques used for forecasting enrollment and student demographics. Projection is defined as ". . . an estimate of future enrollment (or other quantity) based on the assumption that the underlying trends and relationships of the past will continue in the future" (Wing, 1980:217). Wing (1980:217) also contrasts projections with predictions which are defined as ". . . an estimate of future enrollment, regardless of its derivation, that carries with it a high degree of belief in its accuracy." A knowledge of the past trends can be used as part of the basis for prediction of future trends. Wing (1980) cautions that predictions of future conditions should not be based solely on projections from past trends since

there is no guarantee that the same conditions that existed in the past will exist in the future. He also discussed the magnitude of an enrollment forecasting model. Based on Wing's (1980) analysis, the step of ascertaining the current trends in enrollment and the geographic distribution of students will lay the groundwork for later steps of facilities planning, and long range strategic planning.

Mabry (1987) discusses the importance of enrollment management as a tool for planning for the future. He asserts that community colleges had been enjoying rapid increases in enrollment, not only because of the general increase in college age students, but because they serve a large portion of people who had previously not been served in higher education, such as minorities, women, returning adults and part-time students. He maintains that the general decrease in college age students will encourage colleges and universities to heavily recruit students once served almost exclusively by the community colleges. He concludes that enrollment management, which begins by attempting to define enrollment patterns and define the factors that influence them, will allow community colleges and universities to better plan for their future survival.

One recent attempt to forecast enrollment in Arizona was undertaken by Caldwell and Brown (1988). In their report, prepared for the Arizona Board of Regents, Caldwell and Brown (1988) discuss the effects of the declining

numbers of high school graduates, the declining rate of people moving into the state, and the increasing percentage of young minority (K-12) students on the overall enrollment at Arizona's public universities. Also discussed is the impact of the increasing enrollment at the community college level on university enrollments. An enrollment trend forecast based on historic enrollment patterns was presented with several alternate future scenarios.

In a study of the Coast Community College District, Crow and Sanchez (1986) base projections of future enrollments on county population projections. They also examine sources of Coast Community College students in terms of geographical location. Collins (1984), in order to provide a basis for planning for the year 2000 for the Kern Community College District, discusses both internal and external influences on enrollment. Some internal influences were identified as college service area in terms of geography, student services, characteristics of student population, and budget considerations. Demographic trends, challenges from other educational institutions and local economic conditions in the service area were identified as external factors influencing enrollment.

In a more global analysis of factors influencing enrollment, Corey (1983) discusses changes in the curriculum, the increased need for life-long learning, the question of career preparation vs. general skills, and the relevance of the humanities and the future job market.

Strategic planning for the future must involve an integration of academic, budget and facilities analyses. This is a reflection of the recommendations from academic and facilities planners. Wing (1980) points to the need to understand the factors that influence enrollment. Brase (1987-88) calls for an integration of academic and physical planning when preparations for major capital changes are considered. In an interview for Planning for Higher Education (1987-88), Robert W. Scott also calls for the community colleges to analyze student trends as well as sources of funding for programs to meet the changing needs of students. Wheeler (1983) asserts the need to know the nature of students, programs, class and even institution size when planning to build new, or upgrade existing, facilities.

Two themes emerge from a review of the studies of future enrollment patterns. The first is that forecasting techniques depend on a preliminary understanding of the current trends within the institution. In order to develop any model for future prediction, a basic knowledge of the current students in terms of geographical location and demographic characteristics is essential. The second theme that emerges is that predictions for the future must take into consideration factors, both internal and external to the institution, that are seen to influence future enrollments.

Chapter 3

METHODOLOGY AND PROCEDURES

In order to answer the research questions, "What have been the basic enrollment trends at Phoenix College from fall 1985 to fall 1989?" and "Where do most of the students who attend Phoenix College live?" a research methodology was employed. The procedures of this study allowed for a description of the enrollment conditions existing at Phoenix College; thus, the study employed a descriptive research design. In order to describe the basic enrollment trends and to ascertain where most students who attend Phoenix College live, the following procedures were utilized:

1. Enrollment data was collected from the 45th day certified enrollment report, RBA-027 available from the admissions and records department. The data included 45th day counts from the fall semesters from 1985-1989. Those data were selected since they were the standard set by the capital planning document (de los Santos, 1990). Both headcount and full-time student equivalents (FTSE) were obtained for day and evening programs. These data were presented in table and graph format.

2. The total percent of change from 1985-1989 was computed by subtracting the fall 1985 counts from the fall 1989 counts and dividing this result by the fall 1985 count. This quantity multiplied by 100 yielded the total percent of

change from 1985-1989. Although other methods of calculating total change are available, this method was selected since it conformed to the guidelines established in the district's capital planning document (de los Santos, 1990).

3. The average yearly change in enrollment was computed by dividing the total percent of change by four. A tabular format was used to present these data.

4. Enrollment totals by zip codes for fall 1989 were obtained from the admissions and records department. This is a standard computerized report that is available through the college record keeping system. The report is identified by the code RBA-050. Zip codes that contributed the largest number of students to the Phoenix College enrollment were ascertained. These data were presented in table format.

5. The president and deans of Phoenix College were consulted to provide input regarding the limits of zip codes to be included in the Phoenix College service area.

6. A map depicting the service area surrounding Phoenix College was drawn. This map was based on the zip codes determined to contribute most students to the Phoenix College enrollment.

Definition of Terms

Throughout this report several terms have been used. They are defined as follows:

1. Headcount--An individual student registered for any number of credit hours. The headcount represents how many different people are served in credit classes during any one semester. Headcount does not include students registered for non-credit classes.

2. Full-time student equivalent (FTSE)--The total number of credit hours taught on campus in any semester divided by 15. This results in a number that represents how many students would be served if every student carried a full-time credit load of 15 hours. A FTSE is the basic unit of state funding for MCCD. The district receives a certain amount of money from the state for each FTSE served.

3. Service area--Represents the geographic location generating the majority of a college's enrollment. Traditionally the service area has been defined as an area within a six-mile radius of the campus.

Assumptions

Using the above procedures, three assumptions were made. The first assumption was that the enrollment reported on the 45th day of the fall semester is an accurate reflection of the true enrollment trends at Phoenix College. The second assumption was that the enrollment totals by zip codes reported for the fall 1989 were an accurate reflection of the zip codes of students at Phoenix College for other terms as well. A third assumption was that students are

attending Phoenix College because they live, rather than work, in the service area.

Limitations

This study is limited in two respects. One limitation of the study was that students may not report zip codes accurately on their registration forms. The computer report, RBA-050, from which the data were gathered, is generated directly from registration forms. A second limitation was that, in the analysis of zip codes by the president and deans, an arbitrary limit was set on which zip codes were to be included in the analysis of service area.

Chapter 4

RESULTS

Enrollment data from the 45th day from fall 1985 through fall 1989 were obtained. The total headcounts and FTSE for day and evening from the fall semesters of 1985 through 1989 are summarized in Table 1. Also included is the average percent change per year for these enrollment data.

Table 1

45th Day Headcount and FTSE for the Day and Evening Programs at Phoenix College from Fall 1985 through Fall 1989

	1985	1986	1987	1988	1989	Average % Yearly Change
Day Head-Count	5324	5830	5747	6029	6184	4.04
Evening Head-Count	6268	6641	6424	6726	5923	-1.38
Total Head-count	11592	12471	12171	12755	12107	1.11
Day FTSE	3310	3387	3279	3476	3564	1.92
Evening FTSE	2064	2118	2013	2146	1919	-1.76
Total FTSE	5374	5505	5291	5622	5483	.50

The day headcount at Phoenix College increased from fall 1985 through fall 1989 on the average of 4.04 percent per year. The day FTSE increased on the average of 1.92 percent per year. Evening division enrollments showed a decline from fall 1985 through fall 1989. The evening headcount declined an average of 1.38 percent per year, and the evening FTSE declined an average of 1.76 percent per year. Overall the headcount at Phoenix College increased an average of 1.11 percent per year, and the FTSE increased an average of .50 percent per year.

Figure 1 is a graphic representation of the day and evening headcounts for the fall 1985 through fall 1989.

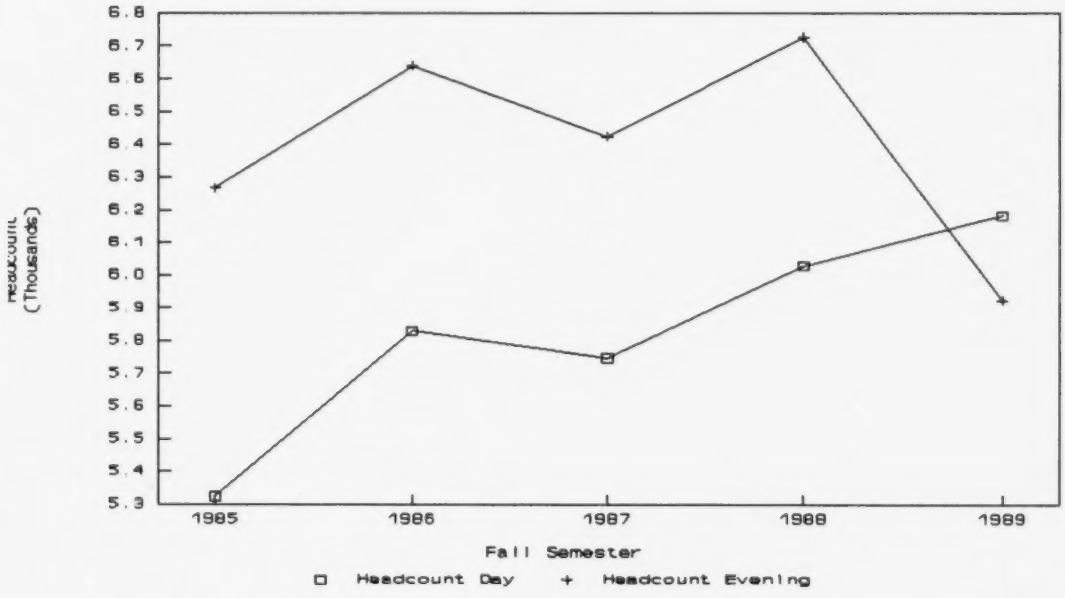

Figure 1

Day and Evening Headcounts at Phoenix College for Fall 1985 through Fall 1989

Figure 2 is a graphic representation of the day and evening FTSE counts for the fall 1985 through fall 1989 semesters at Phoenix College.

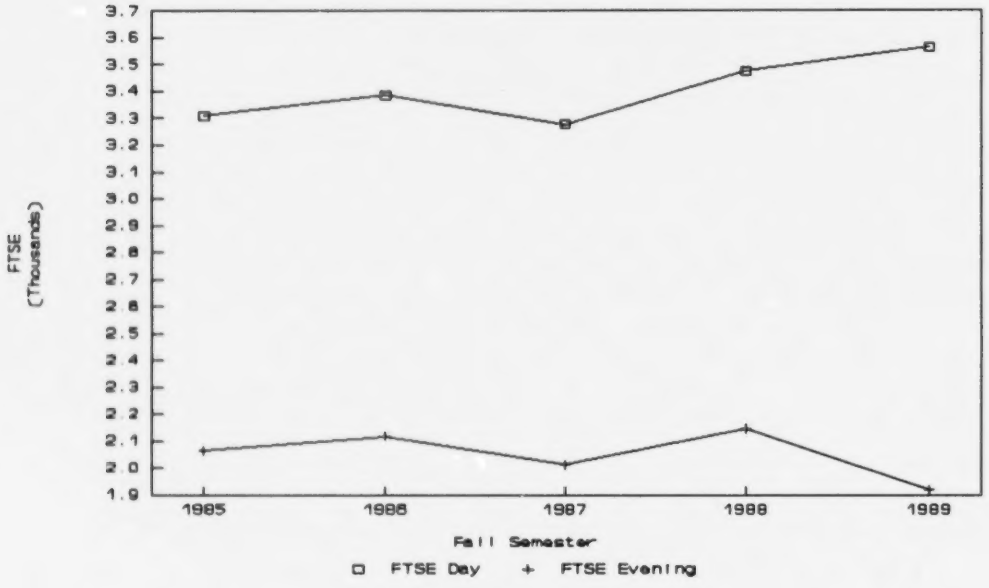

Figure 2

Day and Evening FTSE at Phoenix College
for Fall 1985 through Fall 1989

The computerized report that lists enrollment totals by zip code for fall 1989 was obtained from the computer services department. This report is listed by the number RBA-050 within the student record keeping system at MCCD. An examination of the data showed that Phoenix College students come from a total of 273 different zip codes. Of these, 206 zip codes contribute fewer than 20 students each to the enrollment of Phoenix College. In addition, 311

students did not report a zip code on their registration forms.

To provide a concise definition of the service area, it was decided, after consultation with the president and deans, that zip codes that provide 200 or more students per semester, as measured by the fall 1989 semester would be considered to comprise the major service area of Phoenix College. These zip codes, and the number of students enrolled at Phoenix College who live in them are listed in Table 2.

Table 2

Zip Codes That Provide 200 or More Students Per Semester to the Phoenix College Enrollment

Zip Code	Number of Students
85007	226
85008	394
85009	387
85013	721
85014	605
85015	999
85016	676
85017	444
85018	434
85019	361
85020	491
85021	612
85022	251
85023	349

Table 3 (Cont.)

85029	326
85031	231
85032	267
85033	405
85035	442
85040	264
85041	200
85051	350
85301	228

Twenty-four zip codes in the Phoenix area provided 200 or more students to Phoenix College's enrollment during fall 1989. The total number of students from these zip codes is 9992. According to the totals provided on RBA-050, these twenty-four zip codes account for 69.6 percent of the total enrollment at Phoenix College for the fall of 1989.

A map (Appendix A) was developed showing the twenty four zip codes and the numbers of students at Phoenix College who live in those zip codes. Each zip code was outlined and the number of students reporting an address within that zip code was listed on the map. A circle defining the six-mile radius of Phoenix College was drawn on the map. Four other circles, representing six-mile radii of Glendale, Scottsdale, South Mountain and Gateway Community Colleges were also included on the map. The service areas of these colleges, in terms of a six-mile radius, overlap the service area of Phoenix College.

Chapter 5

DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

An analysis of the data compiled regarding enrollment trends at Phoenix College for fall 1985 through fall 1989 indicates that enrollment over the past four years has remained relatively stable. Data from Table 1 indicate that the day headcount has increased at an average of approximately 4 percent per year. The day FTSE did not exhibit a comparable increase. With an increase of 1.92 percent per year, the day FTSE increased about half as much as the day headcount. This would indicate that more students are attending Phoenix College, but they are taking fewer credit hours.

Enrollment in the evening division has been decreasing, not only in total number of students, but in percentage of the total enrollment as well. In fall 1985, the evening headcount (6268) was more than the day headcount (5324). The evening headcount accounted for 54 percent of the total headcount, while the day headcount contributed 46 percent of the total. In fall 1989, the day headcount had risen to 6184 while the evening headcount decreased to 5923. The percentage of the total headcount contributed by the evening division was 49 percent compared to 51 percent contributed

by the day programs. This was the first semester since fall 1985 in which the evening division headcount was less than the headcount of the day division. It would appear that Phoenix College students are being attracted in increasing numbers to day classes, while the evening classes are becoming slightly less attractive to students. There was a corresponding decline in the percentage of FTSE contributed by the evening division. In fall 1985, the evening division contributed 38 percent of the total FTSE, while in fall 1989 the evening division contributed 35 percent of the total FTSE.

When the data for the day and evening are combined, Phoenix College is experiencing approximately a 1 percent annual increase in headcount and a .50 percent increase in FTSE. The strong enrollment in the day division has been able to offset the decline in the evening division enrollment. A comparison of the total headcount increases to total FTSE increases also supports the conclusion that more students are enrolling but taking fewer credit hours.

These findings correspond with those of Caldwell and Brown (1988) and Crow and Sanchez (1986), who reported that enrollments in the community college may be entering a period of less rapid growth. Tillery and Deegan (1985) also pointed to slowing enrollment as community colleges entered the fifth generation in their evolution.

With respect to the service area of Phoenix College, an inspection of the map in Appendix A reveals that most of the students who attend Phoenix College live within a six-mile radius of the campus. The dotted lines on the map represent the six-mile radius of Phoenix College and the six-mile radii of other MCCD colleges nearby. It is important to note that Phoenix College is located in a business district of the city. Some of the zip codes located immediately adjacent to the college provide fewer than 200 students. Part of the reason for this is that there is a corridor of high rise office buildings along Central Avenue. Few people live in these areas. Also important to note is the influence of the major freeways on student enrollment. Zip codes 85023, 85029, 85033, and 85035 fall outside the six-mile radius of Phoenix College, but they are located along the two major freeway routes in the city, I17 and I10. It can also be seen that the Salt River provides the southern boundary of the service area even though it is well within the six-mile radius.

Conclusions

Student enrollment at Phoenix College has been fairly consistent over the past four years. The number of students attending during the day has been increasing, while the number of students attending during the evening has been declining. In addition, when the ratio of headcount to FTSE

is examined, it can be concluded that students are taking fewer credit hours each semester. The overall growth rate for Phoenix College for the past four years has been approximately 1 percent per year.

With respect to the service area of Phoenix College, it can be concluded that even though students from many areas of the city and state attend Phoenix College, approximately 70 percent of the students who attend live within an area that is less than six miles in radius. Further, students will travel more miles to attend school if they live along a major thoroughfare, and the commute is an easy and quick one.

Implications

The results of this study have several implications for strategic planning, both for the short and long range. While Phoenix College is not decreasing in enrollment, there has been a slight shift from the evening to the day programs. This decline in evening division enrollments, which have traditionally provided more than half of the students at Phoenix College, might be the result of several factors. Phoenix College is in an urban area and students may be increasingly reluctant to travel to this area in the evening. Another possibility is that evening programs are not effectively meeting the educational needs of the students. The location of Phoenix College provides the

opportunity for students who work in the area to attend class after work. The decline in the evening division enrollment may be a reflection that the needs of these students are not being met. Another possibility is that the services of Phoenix College are poorly marketed to this segment of the population.

An examination of the map of the service area indicates that proximity to major freeways can have a positive impact on enrollment. While enrollment appears to be influenced by the actual distance the students must travel, it is also affected by the time it takes to make the commute.

The development of a definition of the service area of Phoenix College provides the opportunity to use the detailed information developed by the Maricopa Association of Governments (MAG) (1989). The MAG data consist of projections for the future of Maricopa County through the year 2040. These projections include population changes, employment changes, and demographic changes broken down for small areas within the county. In addition, knowing the areas of the city that provide the largest numbers of students can facilitate marketing efforts.

Recommendations

It is recommended that these data provide the basis for a more comprehensive study of the enrollment trends at Phoenix College. The total enrollment should be examined

for trends within demographic subdivisions. Enrollment trends among subgroups such as age, sex, full or part-time attendance, ethnic background, educational goals, and choice of curriculum should be examined. Enrollment data from the existing programs should be collected and examined for trends similar to those for the college in general. In this way, program planning will take demographic trends into consideration.

These data can also be used to form the basis for projections of future enrollment. The strategic planning process is designed to aid in the development of plans for the next decade, a clear understanding of how many students will be attending Phoenix College and the characteristics of these students is essential. Population and employment data for the Phoenix College service area should be determined from the MAG (1989) report to help understand the nature of the service area both now and into the future. An understanding of the nature of the service area will help in planning and marketing future programs. For example, advertisements could be sent to targeted areas rather than throughout the whole city. This will save money in mailing costs as well as bringing the material to the people who are most likely to use it. Information regarding existing programs, combined with information from the MAG (1989) reports and information regarding student enrollment trends should be combined to form predictions of the numbers and needs of future students at Phoenix College.

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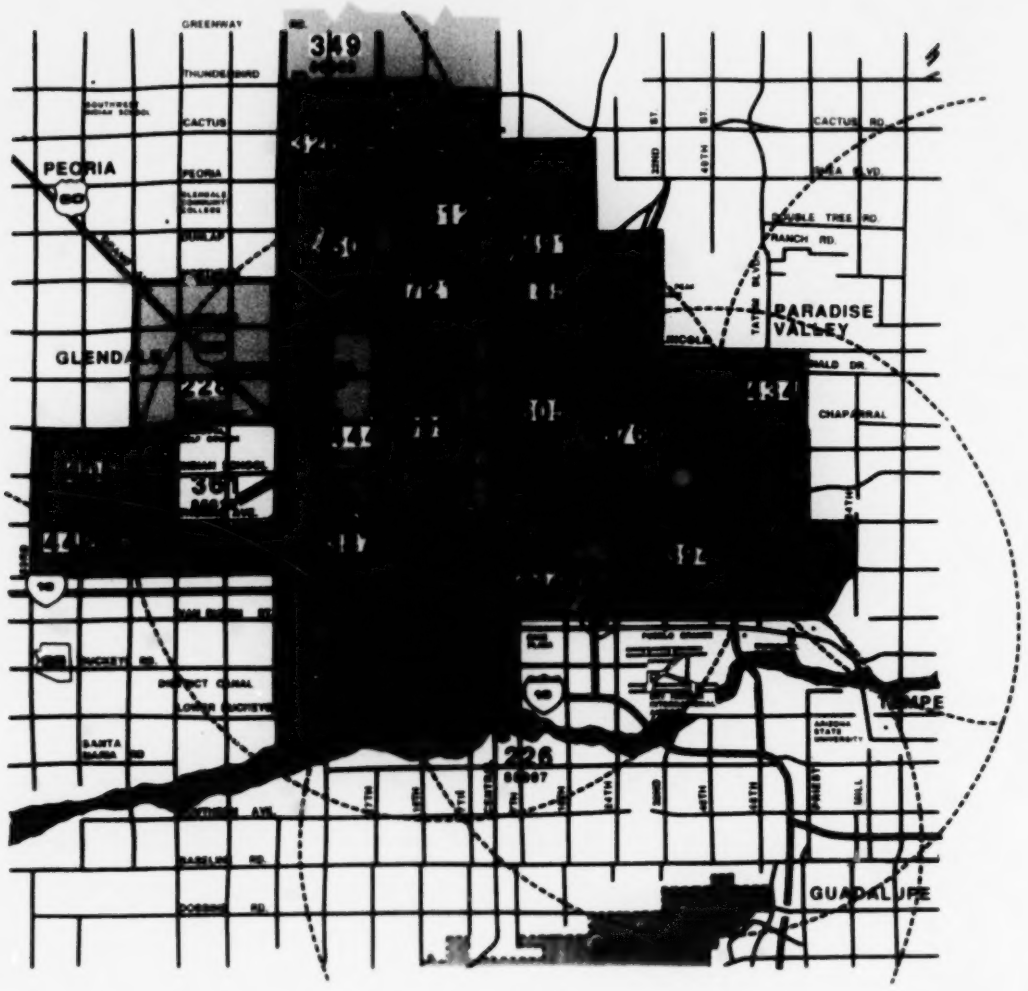
APPENDIX A

MAP OF PHOENIX COLLEGE SERVICE AREA



PHOENIX COLLEGE

AREA OF SERVICE
ZIP CODES WITH A STUDENT POPULATION OF 200 OR MORE

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